

- c'. Fur woolly *M. leucolachnæa*.
 c". Fur not woolly *M. foïna*.
 a". Fur of uniform colour throughout *M. toufæa*.

There remains the supposed species *M. intermedia*, the name given by Severtzoff* to specimens which he described as being intermediate in character between *M. martes* and *M. foïna*. As, however, the only intermediate character specified was the colour of the throat, and the whole description of the supposed species is inadequate, I can only for the present treat this name as a synonym of *M. martes*. I imagine that the description was made through ignorance of the variability of the colour and size of the throat-patch in the martens.

LXVIII.—*Note on the Tunicate Fauna of Australian Seas.*

By W. A. HERDMAN, D.Sc., F.R.S., Professor of Natural History in University College, Liverpool.

FOR some years I have been engaged in studying a large collection of Australian Tunicata sent to me by the Trustees of the Australian Museum at Sydney, in order that I might prepare one of their museum catalogues. That work is now finished: I have returned the collection of type specimens to the Curator of the Australian Museum, and have deposited the MS. and drawings of the catalogue † in the hands of the Agent-General for New South Wales. As I understand it may be some time before the Trustees of the Museum are able to publish this catalogue, I think it will be useful if I make known to fellow-workers what species are described in my MS. I also add to the list other species which have been described from Australia but are not represented in the museum collection, so as to make this a complete record of the Tunicate fauna of Australian seas so far as is known to me.

LIST OF AUSTRALIAN TUNICATA.

In the following list the sixty-three species described and figured as new in the Catalogue of the Tunicata in the Australian Museum are denoted by an asterisk.

* Proc. Mosc. Soc. Nat. vol. viii. p. 2 (1873), translated by J. Carl Cræmers in Ann. & Mag. Nat. Hist. 1876, ser. 4, vol. xviii. pp. 45, 46.

† Over 300 pages of description and 45 octavo plates.

ASCIDIACEA.

ASCIDIÆ SIMPLICES.

Family 1. Molgulidæ.

- * *Ascopera nana*, Herdm. Port Jackson.
- * *Molgula mollis*, Herdm. Port Jackson.
- *Forbesi*, Herdm. Port Jackson.
- * — *sydneyensis*, Herdm. Sydney Harbour.
- * — *recumbens*, Herdm. Port Jackson.
- *inconspicua*, Stimp. Port Jackson.
- ? *Molgula (Cesira) parasitica*, Macd. King George's Sound.
- ? — (—) *ficus*, Macd. Shark Bay.
- ? — (—) *pellucida*, Macd. Shark Bay.
- ? *Ctenicella (Ascidia) tumulus*, Quoy and Gaimard. Port Western.
- ? *Molgula (Ascidia) sabulosa*, Q. & G. Port Western.

Family 2. Cynthiidæ.

Subfamily BOLTENINÆ.

- Boltenia gibbosa*, Heller (?= *Ascidia spinifera*, Q. & G.).
Bass Strait and Port Jackson.
- *australis* (Q. & G.). Port Jackson, Port Western, &c.
- *pachydermatina*, Herdm. Port Jackson &c.
- * — *tuberculata*, Herdm. Port Jackson and Port Stephen.

Subfamily CYNTHINÆ.

- Microcosmus affinis*, Heller. Australia.
- *polymorphus*, Heller. Bass Str., 40 fath.
- *Helleri*, Herdm. Torres Straits and Amboina.
- *propinquus*, Herdm. Bass Str., 40 fath.
- *Julinii*, v. Dr. Sydney.
- *distans*, Heller. New South Wales.
- * — *Draschii*, Herdm. Port Jackson and Port Stephen.
- * — *australis*, Herdm. Port Jackson.
- * — *Ramsayi*, Herdm. Port Jackson.
- Rhabdocynthia* † *complanata*, Herdm. Port Jackson, 6 fath.
- *tenuis* (?), Herdm. Amboina.
- sp. (?), Sluit. Thursday Island.

† I know of three other new species of *Rhabdocynthia* from the north of Australia, but they are not yet described. They are in the collection brought home from Torres Straits by Professor A. C. Haddon.

- Cynthia præputialis*, Heller. Port Jackson.
 — *arenosa*, Herdm. Torres Str., 1-8 fath.
 — *formosa*, Herdm. Torres Str., 3-11 fath.
 — *cerebriformis*, Herdm. Port Jackson, 30 fath.
 — *irregularis*, Herdm. Port Jackson, 2-10 fath.
 — *fissa*, Herdm. Bass Str., 40 fath.
 — *arcuata*, Heller. New South Wales.
 — *grandis*, Heller. Sydney.
 — *hispida*, Herdm. Bass Str., 40 fath.
 — *dumosa*, Stimp. Port Jackson.
 — *sabulosa*, Stimp. Port Jackson.
 — *levissima*, Stimp. Port Jackson.
 * — *molguloides*, Herdm. Port Jackson.
 * — *solanum*, Herdm. Port Jackson.
 * — *multiradicata*, Herdm. Port Stephen.
 * — *cataphracta*, Herdm. Port Jackson.
 * — *spinifera*, Herdm. Port Jackson.
 * — *crinitistellata*, Herdm. Port Jackson.
 ? *Cynthia (Ascidia) aurora*, Q. & G. Port Western.
 ? — (—) *reticulata*, Q. & G. King George's Sound.
 ? — (—) *erythrostroma*, Q. & G. New Zealand.
 ? — (—) *ianthinostoma*, Q. & G. New Zealand.
 ? — (—) *cærulea*, Q. & G. New Zealand.
 ? — (—) *spinosa*, Q. & G. King George's Sound.

Subfamily *STYELINÆ*.

- Styela radicata*, Herdm. Bass Str., 40 fath.
 — *humilis*, Heller. New Zealand.
 — *captiosa*, Sluit. Amboina.
 — *palinorsa*, Sluit. Amboina.
 — *exigua*, Herdm. Port Jackson.
 — *plicata*, Les. (= *S. gyrosa*, Heller). Port Jackson &c.
 — *phaula*, Sluit. Thursday Island.
 — *solvens*, Sluit. Amboina.
 * — *pinguis*, Herdm. Port Jackson.
 * — *Etheridgii*, Herdm. Port Jackson.
 * — *Whiteleggii*, Herdm. Port Jackson, Port Stephen.
 * — *personata*, Herdm. Port Jackson.
 * — *stolonifera*, Herdm. Moreton Bay.
Polycarpa tinctor, Q. & G. Port Jackson, &c.
 — *aurata*, Q. & G. (= *P. sulcata*, Herdm., = *P. pneumonodes*, Sluit.). Port Jackson, &c.
 — *radicata*, Herdm. Port Jackson and Twofold Bay, 120 fath.
 — *viridis*, Herdm. Port Jackson and Port Stephen.

- Polycarpa pedunculata*, Heller. Bass Str.
 — *clata*, Heller. (?) Australia or New Zealand.
 — *longisiphonica*, Herdm. Port Jackson, &c.
 — *Stimpsoni*, Heller. Sydney.
 — *obscura*, Heller. Bass Str.
 — *nebulosa*, Heller. (?) Australia or New Zealand.
 — *pilella*, Herdm. Port Stephen.
 — *rigida*, Herdm. Bass Str., 40 fath., Port Jackson, &c.
 — *bassi*, Herdm. Bass Str.
 — *molguloides*, Herdm. Bass Str., 40 fath.
 * — *fungiformis*, Herdm. Moreton Bay.
 * — *stephenensis*, Herdm. Port Stephen.
 * — *Sluiteri*, Herdm. Port Jackson.
 * — *sacciformis*, Herdm. Port Jackson.
 * — *jacksoniana*, Herdm. Port Jackson.
 * — *attollens*, Herdm. Port Jackson.

Family 3. Ascidiidæ.

Subfamily CIONINÆ.

- Ciona* (?) *intestinalis*, Linn. Off Cockatoo Island, Port Jackson.
Rhodosoma (*Pera*) *Huxleyi*, Macd. Bellona Reefs.
 (? = *Peroidea*, Macd. also.)

Subfamily ASCIDIINÆ.

- ? *Ascidia diaphana*, Q. & G. Hobart Town.
Ascidia cylindracea, Herdm. Twofold Bay, 120 fath.
 — *pyriformis*, Herdm. Port Jackson, 6 fath.
 — *succida*, Stimp. Port Jackson, low tide.
 — *sydneiensis*, Stimp. Port Jackson, low tide.
 — *bifissa*, Sluit. Amboina.
 — *empheres*, Sluit. Amboina.
 — *gemmata*, Sluit. Amboina.
 — *kreagra*, Sluit. Amboina.
 * — *incerta*, Herdm. Port Jackson, 6-8 fath.
 * — *phallusioides*, Herdm. Port Jackson, 6-8 fath.
Pachychlæna oblonga, Herdm. Bass Str., 40 fath.
 — *obesa*, Herdm. Bass Str., 40 fath.
Abbyssascidia Wyvillii, Herdm. South of Australia, 2600 fath.

Family 4. Clavelinidæ.

- Perophora Hutchisoni*, Macd. King George's Sound.
 **Podoclavella meridionalis*, Herdm. Port Jackson, Amboina,
 Thursday Is.
 **Stereoclavella australis*, Herdm. Naucleuse, Port Jackson,
 low tide.
 *— sp. ? Broughton Islands.
Ecteinascidia euphues, Sluit.
 — *psammodes*, Sluit.
Rhopalopsis crassa, Herdm. Ki Is., 129 fath.
 — *fusca*, Herdm. Banda, 17 fath.
 [? *Chondrostachys*, sp., Macd. Bass Str., 10–12 fath.]

ASCIDIÆ COMPOSITÆ.

I. MEROSOMATA †.

Family 1. Distomidæ.

- Colella pedunculata*, Q. & G. Port Western &c.
 — *pulchra*, Herdm. Torres Str., 6 fath.
 — *elongata*, Herdm. Port Jackson, 30 fath.
 — *Murrayi*, Herdm. S.E. Australia, 120 fath., and
 Port Jackson.
 — —, var. *rubida*. Bass Str., 33 fath.
 * — *plicata*, Herdm. (? = *C. cerebriformis*, Q. & G.). Port
 Jackson, &c.
 * — *tenuicaulis*, Herdm. Port Jackson, Port Stephen.
 * — *claviformis*, Herdm. Port Jackson.
 * — *cyanea*, Herdm. Port Jackson.
Distoma deerrata, Sluit. Thursday Is., Torres Str.
 ? *Chondrostachys*, sp., Macd. Bass Str., 10–12 fath.
 ? *Polyclinum cylindricum*, Q. & G. Port Western.

Family 2. Polyclinidæ.

- Sigillina australis*, Sav. Port Jackson [Whitelegge].
Atopogaster aurantiaca, Herdm. Bass Str., 40 fath.
Polyclinum fungosum, Herdm. Port Jackson, 6–15 fath.
 — *depressum*, Herdm. Torres Str., 3–11 fath.
 — *glabrum*, Sluit. Amboina.

† Modified from Sluiter's classification, and including those families of Compound Ascidiæ which are related to the Clavelinidæ, and in which the body is divided into regions, such as the Distomidæ and the Polyclinidæ.

- Polyclinum hospitale*, Sluit. Thursday Island.
 *— *clava*, Herdm. Port Jackson.
 *— *giganteum*, Herdm. Port Jackson.
 *— *globosum*, Herdm. Port Jackson.
 *— *complanatum*, Herdm. Port Jackson.
 *— *fuscum*, Herdm. Port Jackson.
 *— *prunum*, Herdm. Port Jackson.
 *? *Polyclinum nigrum*, Herdm. Naucleuse, Port Jackson.
Amaroucium albidum, Herdm. Bass Str., 40 fath.
 — *Ritteri*, Sluit. Thursday Is.
 *— *rotundatum*, Herdm. Port Jackson.
 *— *protectans*, Herdm. Port Jackson.
 *— *distomoides*, Herdm. Port Jackson.
 *— *anomalum*, Herdm. (= *Polyclinoides*, sp., Maed.).
 Sydney Harbour.
Psammaphidium spongiforme, Herdm. Port Jackson, 7 fath.
 — *ovatum*, Herdm. Torres Str., 3-11 fath.
 — *pyriforme*, Herdm. N. Australia, 8 fath.
 *— *solidum*, Herdm. Port Jackson.
 *— *lobatum*, Herdm. Port Jackson.
 *— *fragile*, Herdm. Port Jackson.
 *— *incrustans*, Herdm. Port Stephen.
 *— *pedunculatum*, Herdm. ? Port Jackson.

Family 3. Didemnidæ.

- Didemnum aurantiacum*, Herdm. Bass Str., 38 fath.
Leptoclinium jacksoni, Herdm. Port Jackson, 6-15 fath.
 — *psammathodes*, Sluit. Thursday Is.
 — *pantherinum*, Sluit. Amboina.
 — *pustulosum*, Sluit. Amboina.
 — *torresii*, Sluit. Thursday Is.
 — *siphoniatum*, Sluit. Amboina.
 — *asteropum*, Sluit. Amboina.
 *— *incanum*, Herdm. Port Jackson.
 *— *fimbriatum*, Herdm. Port Jackson.
 *— *patulum*, Herdm. Port Jackson.

Family 4. Diplosomidæ.

- Diplosoma Rayneri*, Maed. Sydney Harbour (?).

II. HOLOSOMATA †.

Family 1. Polystyelidæ.

- Synstyela incrustans*, Herdm. Thursday Is.
 * *Goodsiria lapidosa*, Herdm. Port Jackson.
 * *Chorizocormus sydneyensis*, Herdm. Port Jackson.
 * — *subfuscus*, Herdm. Port Jackson.
 * — *leucophæus*, Herdm. Port Jackson.

Family 2. Botryllidæ.

- Botryllus* (? *Symplegma*) *racemosus*, Q. & G. New Zealand.
 ? *Botryllus* (*Distomus*) *violaceus*, Q. & G. Port Western.
 * *Botrylloides leptum*, Herdm. Port Jackson.
 * — —, var., Herdm. Port Jackson.
 * *Sarcobotrylloides jacksonianum*, Herdm. Port Jackson.
 * — *anceps*, Herdm. Port Jackson.
 * — *purpureum*, Herdm. Port Jackson and Port Stephen.
 * — *pannosum*, Herdm. Port Stephen.

ASCIDIÆ SALPIFORMES.

Family Pyrosomidæ.

- Pyrosoma*, sp. (?) [Whitelegge]. Bondi and Coogee.
 — *giganteum*, Lesueur. S. of Australia.

THALIACEA.

Family 1. Doliolidæ.

- Doliolum denticulatum*, Q. & G. Off Port Jackson &c.
 — *Ehrenbergi*, Krohn. Between Sydney and New Zealand.

Family 2. Salpidæ.

- Salpa democratica-mucronata*, Forsk. Off Port Jackson &c.
 — *cylindrica*, Cuv. Amboina.
 — *scutigera-confederata*, Cuv.-Forsk. Amboina.
 — *costata-tilesii*, Q. & G.-Cuv. Between Sydney and New Zealand.
 — *cordiformis-zonaria*, Q. & G.-Pallas. Between Sydney and New Zealand.

† Modified from Sluiter's classification, and including those families of Compound Ascidiæ which are related to the Cynthiidæ and in which the compact body is not divisible into regions, viz. the Polystyelidæ and the Botryllidæ.

L A R V A C E A.

Family Appendiculariidæ.

Appendicularia, sp. (?) [Whitelegge]. Port Jackson.

The above list comprises 180 species—a greater number than that (about 176) known from the shores of North-western Europe, a nearly corresponding area of coast in the Northern hemisphere, and the one which, of all the world, has been most exhaustively worked up. But even this large number of species does not complete the Australian Tunicate fauna, as I have seen from a preliminary examination of the large collections brought back from Australian seas by Professor A. C. Haddon and by Dr. A. Willey that they each contain some additional undescribed species. This great abundance of species in these southern seas agrees with the view I expressed in the 'Challenger' Report, that Ascidiæ "attain their greatest numerical development in southern temperate regions," and bears out especially the remark made long before by Quoy and Gaimard:—"La Nouvelle-Hollande, dans sa partie sud, et la Nouvelle-Zélande, sont les lieux de prédilection des Ascidies en général."

I may add that the extra-tropical southern species do not show any special relationship to the species of the northern hemisphere. I do not think that the Tunicata can be said to give any support to a "bipolar" hypothesis.

LXIX.—*Description of a new Genus of Cyprinoid Fishes from Siam.* By G. A. BOULENGER, F.R.S.

CATLOCARPIO.

Allied to *Catla*, C. & V., with which this genus agrees in the structure of the mouth, with large maxillary bone covering the slender protractile præmaxillary, the thin cephalic integument, the absence of barbels, the subinferior position of the eyes, the very long and fine gill-rakers, the large scales, and the short anal fin; differing in the short dorsal fin, with nine branched rays, and the disposition of the (4) pharyngeal teeth in a single series.